

# **SOHO Spacecraft Status SWT**

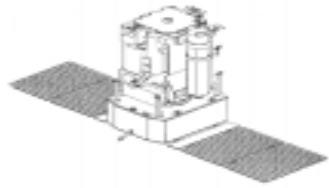
**Manchester**

**9 August 2000**

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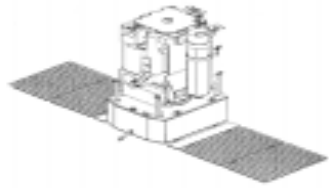
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### **Spacecraft status**

- **Spacecraft is nominal. There was no major anomaly since last SWT.**
- **Data handling: nominal performance.**
- **Attitude control: the gyroless software performs perfectly and kept the attitude control in Normal Mode during the “proton blizzard” of July 14.**
- **Propulsion: Thruster performed nominally during maneuvers. Two momentum managements and two station keeping were performed. Remaining fuel: about 124 kg (July 31, 00). Next maneuver is planned for November 7, 2000.**
- **Thermal: all spacecraft temperatures are within limits.**
- **Communications: DSN “26 meter automation” was not very successful (receiver locking problems, corrupted TM ...). They will revert to “manual” stations until further notice.**



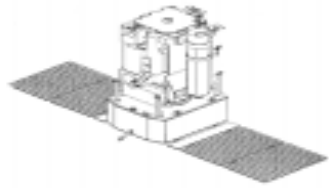
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### **Effect of the July 14 solar flare**

- **After the class X5.7 solar flare of July 14, a very high rate of particle/radiations hits was observed:**
  - **up to 245 single errors per minute on the Solid State Recorder (usually less than 1 per minute)**
  - **up to 3600 SEU/day on the star tracker (normal rate is less than 10 per day).**
- **The gyroless automatic star swapping feature was used three times to switch to a backup star when the current guide star is lost. Each time, the normal recovery procedure was run by FOT to return to the original control star once it was correctly tracked again.**



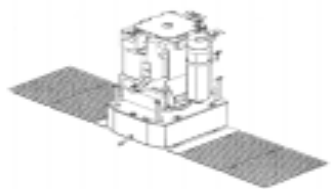
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### **Effect of the July 14 solar flare (cont'd)**

- **The Solar flare has induced a significant degradation on the Solar Arrays. 1.75% degradation in just 2 days, which is more than the 1.5 % usually observed over one year. Nonetheless, the spacecraft total consumption is still less than 2/3 of the power provided by the Solar Arrays.**
- **During the November 1997 solar flare, there were three fallbacks in RMW. This time, although it was a much more severe “proton storm”, the spacecraft was able to stay in Normal Mode.**

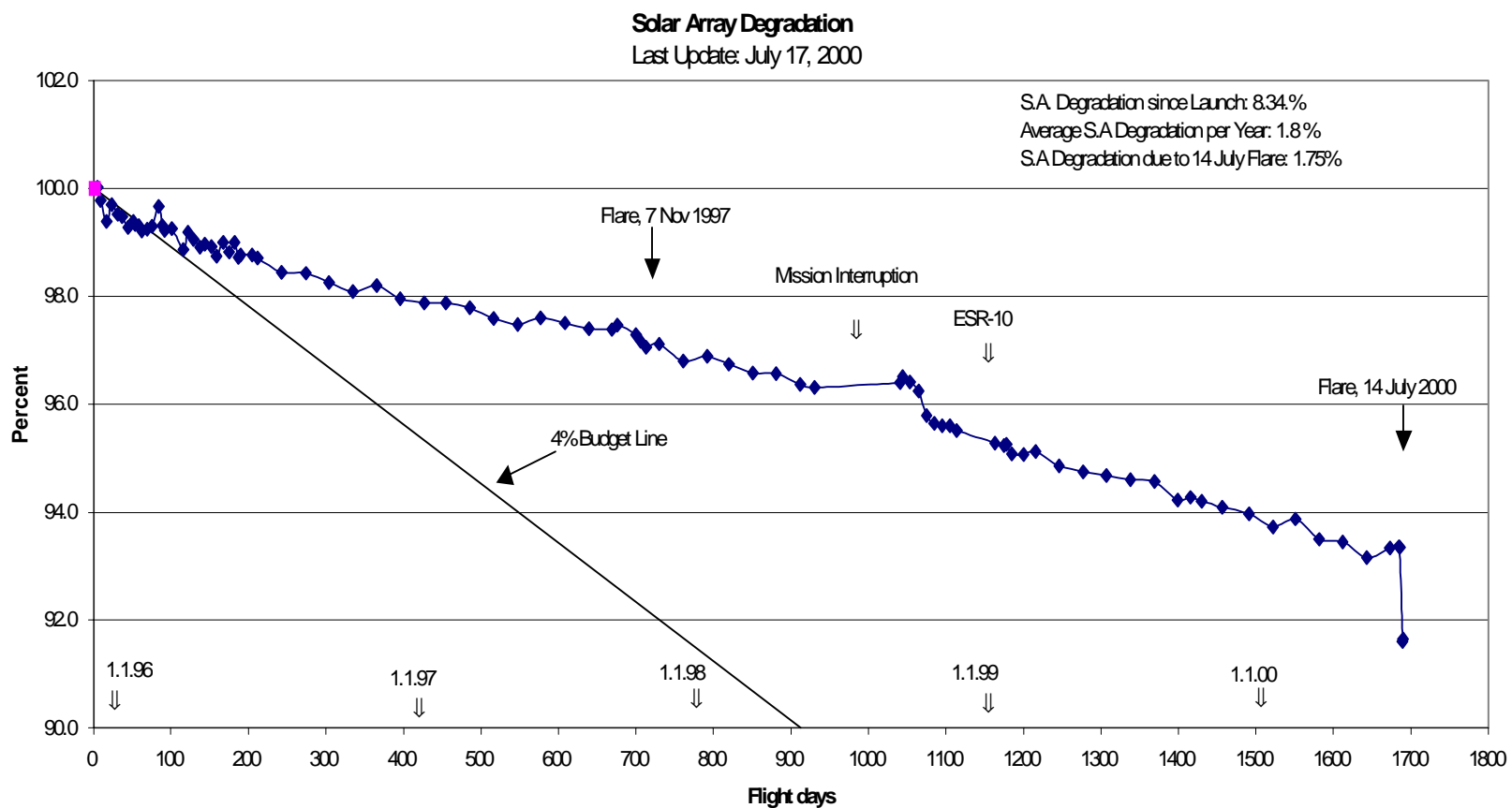


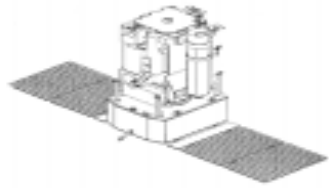
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## Solar array degradation





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### **Offpointings for EIT calibration**

- Offpointings for EIT calibration can be achieved using the new attitude profile function.
- Profiles can be done in Normal Mode with the following constraints:
  - Profiles must be done in medium rate to guarantee RF budget link.
  - Pitch and Yaw offpointings must remain within 2 degrees such that the sun stays in the FPSS field of view.
  - Roll and Pitch profiles, the guide star must be selected so as to stay in the Star Tracker field of view.
  - Up to one degree, profiles last 6 minutes, no matter how small.
  - For small offpointings (less than 0.5 degree), momentum management should not be necessary.